Battery Room Checklist

Construction

1. Are sinks and benches acid- and chemical-resistant (DG 415-3)?

2. Are there high and low level dilution exhaust ventilation? (ACGIH Ventilation Manual 28th Ed., UFC 3-410-04N)

3. Is the makeup air introduced at floor level and exhausted to the exterior of the building (DG 415-3)?

4. Are there self-contained battery compartments with a ventilation system (DG 415-3)?

HVAC

1. Is the exhaust ventilation system separate from the general ventilation system so that no air is recirculated (UFC 3-410-01FA)? Is all air exhausted directly outside (UFC 3-410-01FA)?

2. Does the exhaust fan provide 2 cfm/ft^2 of floor area (DG 415-3)?

Measure Room Dimensions: Height _____
Width _____
Length _____

Measure Hood Dimension: Width _____
Length _____

Room Area = Width x Length

Room Area = _____ x _____

Room Area = _____ ft^2

Room Volume = Width x Length x Height

Room Volume = _____ x _____ x _____

Room Volume = _____ ft^3

Face Velocity Readings:

Average Face Velocity = Sum of Readings x Number of Readings

Average Face Velocity = _____ x _____

Average Face Velocity = _____ ft/min

Hood Area = Width x Length

Hood Area = _____ x _____

Hood Area = _____ ft^2

Q = Average Face Velocity x Hood Area

Q = _____ x _____

Q = _____ cfm

Room Airflow = Q / Floor Area

Room Airflow = _____ / _____

Room Airflow = _____ cfm/ft^2

3. Is the exhaust fan AMCA 201, Type B spark-resistant construction and explosion proof motor (UFC 3-410-04N)? Does the fan have a non-sparking wheel (UFC 3-410-04N)?

4. Is the fan motor outside the airstream (UFC 3-410-04N)?

5. For Army Installations, is the exhaust air volume from the exhaust fan at least (UFC 3-410-04N):

Q = (C/60)/PC where,

- Q = minimum required ventilation rate, cfm
- C = Hydrogen generated in cubic feet per hour (cfh) where,
  - C = (FC/100) x AH x K x N
  - FC = Float current per 100 ampere-hour
  - AH = Ampere hour
  - K= Constant of 0.016 cubic feet of hydrogen per 1 ampere-hour/cell
  - N = Number of battery cells
- PC = percent concentration of hydrogen allowed in room (PC = 0.01 to keep the hydrogen concentration at 1%)

7. Is the supply air rate 95% of the exhaust ventilation in order to maintain a negative pressure in the room (ACGIH Industrial Ventilation Manual 28th Ed., UFC 3-410-04N)?

PLUMBING

1. Is there an eyewash and deluge shower easily accessible from any point in the room (DG 415-3)? Is the eyewash and shower within 25 feet of the work area (UFC 3-410-04N)?

2. Is an audible alarm activated by the shower (DG 415-3)?

SAFETY

1. Are the facilities for flushing and neutralizing spilled electrolyte and for fire protection (UFC 3-140-04N)?

2. Are there non-slip rubber insulating matting in front of all charging benches (UFA 3-410-04N)?

3. Are there warning signs (e.g. Hydrogen, Flammable Gas, No Smoking, No Open Flames, etc.) (UFC 3-410-04N)?

ELECTRICAL

1. Is there an emergency power cutoff for the battery charger, with a secondary cutoff outside the battery room (DG 415-3)?

2. Are the charging circuits interlocked with the exhaust fan to ensure chargers will not operate without ventilation (UFC 3-410-04N)?

References

Army National Guard DG 415-3 Aviation Facilities Design Guide
ACGIH Industrial Ventilation Manual, 28th Edition
UFC 3-410-04N, Industrial Ventilation, 25 October 2004
UFC 3-420-01, Plumbing, 25 October 2004
NFPA 70, National Electrical Code
NFPA 70E, Standard for Electrical Safety in the Workplace
NFPA 505, Fire Safety Standard for Powered Industrial Trucks